

REMARKS

In the outstanding office action, claims 1-20 were presented for examination. The specification and claims 8-10 and 12 were objected to. Claims 6, 9, 14 and 20 were rejected under 35 U.S.C. §102. Claim 6 was rejected under 35 U.S.C. §101 and Claims 1-20 were rejected under 35 U.S.C. §103 as being unpatentable over Nomura et al. (U.S. Publication No. 2002/0081469) in view of Nakayama et al. (U.S. Publication No. 2002/0148498).

In the instant amendment applicant has canceled claim 6 rendering the rejections with regard to the same as being moot.

Concerning the objection to the specification, applicant has amended page 1 of the same to include the serial number of the cross referenced application. No new matter has been added. Accordingly, applicant respectfully requests withdrawal of the objection to the specification.

Concerning the objection to claims 8 and 9, applicant has amended claim 1 in accordance with the suggestions provided in the outstanding office action. Accordingly, applicant respectfully requests withdrawal of the objection to claims 8 and 9.

Concerning the objection to the claims 10 and 12, applicant respectfully submits that the limitation of "said heat waste of said solid oxide fuel cell system is within a range defined by a lower limit of 400 degrees Celsius and an upper limit of 1,200 degrees Celsius when said solid oxide fuel cell system is providing said first source of power" (claim 10) and "wherein said thermo photovoltaic device and said combustor provide an initial source of power during a warm up phase of said fuel cell system, said warm up phase being the time necessary to bring said fuel cell system from a non-power producing configuration to a power producing configuration" (claim 12) are functional limitations.

See section 2173.05(g) of the MPEP reproduced in part below:

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. >In *Janova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term "operatively connected" is "a general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components," that is, the term "means the claimed components must be connected in a way to perform a designated function." "In the absence of modifiers, general descriptive terms are typically construed as having their full meaning." *Id.* at 1118, 72 USPQ2d at 1006. In the patent claim at issue, "subject to any clear and unmistakable disavowal of claim scope, the term 'operatively connected' takes the full breath of its ordinary meaning, i.e., 'said tube [is] operatively connected to said cap' when the tube and cap are arranged in a manner capable of performing the function of filtering." *Id.* at 1120, 72 USPQ2d at 1008.<

...

It was held that the limitation used to define a radical on a chemical compound as "incapable of forming a dye with said oxidizing developing agent" although functional, was perfectly acceptable because it set definite boundaries on the patent protection sought. *In re Barr*, 444 F.2d 588, 170 USPQ 33 (CCPA 1971).

In a claim that was directed to a kit of component parts capable of being assembled, the Court held that limitations such as "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slidably positioned" serve to precisely define present structural attributes of interrelated component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976).

Accordingly, applicant respectfully requests withdrawal of the objection to claims 10 and 12 as the limitations set forth therein provide specific boundaries, which further limit the scope of the claims from which they depend.

Concerning the rejections of claims 14 and 20 under 35 USC section 112, applicant respectfully submits that the limitation of "wherein said heat waste is generated before, during and after said fuel cell system is generating said first source of power" is not indefinite as clearly shown in Figure 1, the exhaust of the SOFC is provided to the combustor of the thermo-photovoltaic device. Moreover and as stated on at least page 11, lines 4-10 of the specification, the SOFC may take up to 20-30 minutes to warm up thus, and during the warm up phase, the SOFC is not providing power however, the exhaust of the SOFC is still provided to the combustor. Therefore, applicant respectfully submits that the limitation of "wherein said heat waste is generated before, during and after said fuel cell system is generating said first source of power" is not indefinite and accordingly applicant respectfully requests reconsideration of the same.

Claim 9 has also been amended to depend from claim 8 thus, applicant respectfully requests withdrawal of the rejection of claim 9 under 35 USC section 112.

Claim 10 has been amended on line 1 to replace "where" with -- wherein--. No new matter has been added.

Claim 15 has been amended on line 8 to delete the first instance of "exhaust" in order to clarify the same. No new matter has been added.

Turning now to the rejections of claims 1-20 under 35 U.S.C. §103 over Nomura et al. (U.S. Publication No. 2002/0081469) in view of Nakayama et al. (U.S. Publication No. 2002/0148498). Applicant notes the following: the outstanding office action acknowledges that Nomura et al. fails to teach a thermo photovoltaic (TPV) cell that uses heat and other exhaust from a fuel cell stack. Accordingly, Nakayama et al. is relied upon solely for inclusion of the thermo photovoltaic (TPV) cell in order to cobble together a rejection of independent claims 1 and 15 under 35 U.S.C. §103.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

The rejection of independent claim 1 and 15 is respectfully traversed for at least the following reason. The Nakayama et al. reference alone or in combination with the other cited reference fails to teach or suggest all of the claim limitations. More specifically, Nakayama et al. fails to teach or suggest “at least one solid oxide fuel cell system ... said solid oxide fuel cell system producing heat waste; and at least one thermo photovoltaic device ... said thermo photovoltaic device providing said second source of power from said heat waste which is provided to a combustor for further heating” (claim 1) and “generating power from a solid oxide fuel system, said solid oxide fuel system generating a heat exhaust ... wherein said thermo photovoltaic device generates power from the heat from said combustor when said heat exhaust is heated by said combustor to a predetermined temperature for energy conversion by said thermo photovoltaic device” (claim 15).

Nakayama et al. merely shows a thermophotovoltaic device having an air inlet. There simply is no teaching of combination power supply as in claim 1 or a method of generating power as in claim 15.

Even assuming that all elements of an invention are disclosed in the prior art, an Examiner cannot establish obviousness by locating references that describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28 U.S.P.Q.2d 1369 (Bd. Pat. App. Int. 1993). The references, when viewed by

themselves and not in retrospect, must suggest the invention. *In Re Skoll*, 187 U.S.P.Q. 481 (C.C.P.A. 1975). In this case, there is no teaching in the cited art to combine the references in an attempt to produce the claimed invention.

More specifically, there simply is no motivation to combine the Nomura et al. and Nakayama et al. reference to use the heat exhaust of the different power generating systems to provide more efficient operation of the same in a single device. Moreover, the claimed device provides power in one operational aspect when one of the two devices is not providing power (e.g., the warm up stage of the SOFC). This operation is simply not taught or obvious in view of Nomura et al. and Nakayama et al.

Accordingly, claims 1 and 15 are believed to be allowable over Nomura et al. and Nakayama et al.

The remaining claims 2-5, 7-14 and 16-20 depend from directly or indirectly from claims 1 and 15 accordingly, claims 2-5, 7-14 and 16-20 are also believed to be in a condition for allowance for at least the same reasons as claims 1 and 15 in addition to including additional limitations.

New claim 21 has been added to more particularly point out various aspects of the present application and the same has been carefully drafted to avoid questions under 35 U.S.C. §112. Support for new claim 21 is clearly found in the specification and drawings as filed thus, no new matter has been added.

In view of the above amendments and the discussion relating thereto, it is respectfully submitted that the present application is in condition for allowance. Such action is most earnestly solicited. If for any reason the Examiner feels that consultation with Applicants' attorney would be helpful in the advancement of the prosecution, the Examiner is invited to call the telephone number below for an interview.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130, maintained by the applicant's attorney.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted
By:
Christopher E. Boehm
Reg. No. 41,624

Date: November 1, 2006
Telephone: (248) 524-2300